

bellino repleta; vesiculis nudo oculo distinctis. Chudleigh, October 1845.

Globose, at length depressed, half an inch in diameter; at first white, but soon, especially when rubbed, assuming a reddish tinge, pouring out when cut a rich pale red cream-like fluid. Sporangia as large as those of *Endogone pisiformis*. A very distinct and interesting species.

X.—*On the Regular Arrangement of Crystals in certain Organs of Plants.* By EDWIN J. QUEKETT, F.L.S.

It rarely happens in plants that any definite organ is the seat of crystalline collections symmetrically arranged, though the occurrence of crystals (raphides) in the cells of various portions of a vegetable is extremely common.

About two years since I met with two organs which exhibit the singular fact, that in them at least the crystals are constant and have a regular arrangement.

One of these is the testa of the seed of *Ulmus campestris*, in which the sinuous boundaries of the compressed cells of which it is composed are completely traced out by minute rectangular crystals adhering to their walls. The other is much more remarkable, because, as far as I have been enabled to carry my observations, every member of two allied natural orders have very much the same disposition of these bodies in the same organ.

If a sepal of any of the ordinary cultivated Pelargoniums be taken, and a portion of the upper cuticle be removed and submitted to the microscope, or if the entire sepal of *Geranium Robertianum* or *lucidum* be similarly used, it will be readily seen, by magnifying 300 times, that every cell beneath the cuticular layer is small and round, and in each is a cluster of crystals (conglomerate raphides), each crystal in the group radiating from a common centre.

These crystals fill the whole of the cells in the middle of the sepal, and do so likewise all the cells until within a short distance of the margin, where they are absent and the border is transparent; the appearance they present is very beautiful and their numbers and regularity most extraordinary. Their size is about the  $\frac{1}{2000}$ th to  $\frac{1}{1500}$ th of an inch, and their composition appears to be oxalate of lime; they are insoluble in boiling water, but are soluble without effervescence in nitric acid, but after being heated red-hot are soluble with effervescence.

I have found them in all the species of British *Geranium* and *Erodium*, and in all the species of *Pelargonium* and *Monsonia* (for which plant I am indebted to Mr. J. Smith of Kew) that I have been enabled to obtain; and it is not improbable that they

may occur in all the species, and may be as general a character of the order as the beautiful markings in the cuticle of the petals are well known to be.

Other orders have been examined which are said to have a near affinity with *Geraniaceæ*, but none of the plants examined, belonging to the orders *Balsaminaceæ*, *Tropæolaceæ*, *Oxalidaceæ* or *Linaceæ*, manifest anything like the appearances described—in fact no clustered crystals have been met with; but in taking an order said to be somewhat more remote, *Malvaceæ*, I find in all the examples that I have examined of British and foreign plants, precisely a similar disposition and number of crystals.

If the leaves constituting the involucre of *Althæa*, *Malva* and *Pelargonium* be carefully examined, a few crystals will occasionally be found, but altogether not in the slightest to be compared with the number or disposition of those in the sepals.

If constitutional peculiarities, besides structure, have any influence with systematists, then *Malvaceæ* ought probably to be placed somewhat nearer *Geraniaceæ*; and when we consider the monadelphous condition of the stamens of both orders and their tendency in *Monsonia* to be indefinite, and the carpels of some plants of *Malvaceæ* to have but one seed, exalbuminous, and to be disunited, and the parts of the flower of the same numbers, there appears to be some reason, as far as the structure of the reproductive organs is concerned, to bring the position of these orders in closer relation.

The sepals of most plants are favourable organs for meeting with crystalline bodies, either of the solitary, acicular or clustered varieties. The sepals of *Prunella vulgaris* and *Dianthus caryophyllus* exhibit well the solitary cubic crystal beneath the cuticular cells; the Fuchsias contain a great quantity of the acicular kind, and the sepals of the Strawberry exhibit the clustered variety as seen in the *Geraniaceæ*. Thus it appears that there is something peculiar to the sepals of certain plants that disposes the contents of their cells to form crystals which does not belong to the neighbouring organs.

50 Wellclose Square, July 4, 1846.

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XI.—*Remarks on certain Genera belonging to the Class Palliobranchiata.* By WILLIAM KING, Curator of the Museum of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne.

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PENTAMERUS.

THE beak of *Pentamerus* is furnished with an aperture of the form of a triangle, the base of which corresponds to the hinge